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(71)Applicant: YASKAWA ELECTRIC CORP

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(72)Inventor: ANDO SHINGO

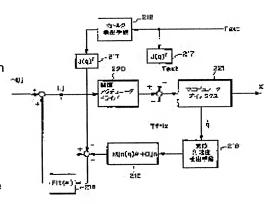
KAWABE MITSUNORI

(54) COMPLIANCE CONTROL METHOD OF MANIPULATOR

(57)Abstract:

PROBLEM TO BE SOLVED: To realize stable and precise contact work by setting off disturbance by using an observer to estimate disturbance caused by nonlinear friction, etc., in the inside of a force feedback loop of torque base compliance control.

SOLUTION: Torque generated on a joint by a force vector Fext which a terminal of a manipulator gives to an environment is detected by a force torque detection means 218. Inertial force and viscous frictional force of the manipulator is determined by a computing part 215 (nominal values Mjn (q), Djn of an inertial matrix and a viscosity matrix of the manipulator). In addition to these values, non-linear friction of the manipulator is estimated in accordance with a joint speed vector of the manipulator and a low pass filter 216 (a low pass filter matrix Flt (s) to remove a high frequency component). Thereafter, force torque compliance control is constituted by regarding a difference of the non-linear friction estimated as control input uj as new control input.



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